Livestock Grazing

Specialist Report

Tensleep Watershed Allotments

Baby Wagon S&G
Dry Tensleep C&H
Garnet Creek Creek S&G
Hazelton S&G
Leigh Creek S&G
McLain Lake S&G
Monument C&H
North Canyon C&H
South Canyon C&H
Tensleep Canyon C&H
Upper Meadows S&G
Willow S&G

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Rock Creek C&H Allotment

In Rock Creek Watershed

for

"The Big 6"

Livestock Grazing Analysis

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April 21~~March 5~~, 201~~0~~1 -FINAL~~DRAFT~~ -

Introduction and Overview

This discussion addresses Livestock Grazing within the Tensleep and Rock Creek Watersheds. It describes the affected environment and environmental consequences of alternatives to the proposed action relative to issues that have been developed as described in detail in Chapter 1. Issues identified as key and non-key will be used to compare the effects of the actions for each alternative. They are:

1) Vacant allotments,
2) Aspen stands
3) Riparian vegetation,
4) Upland vegetation
5) Socio/Economic,
6) Wildlife, fish and plant TES species, MIS, and species of local concern
6a) Bighorn Sheep
7) Water quality,
8) Invasive and noxious weeds,

This Livestock Grazing Specialist Report will discuss the affected environment and identify effects of actions to 1) Vacant allotments and 5) Socio/Economic issues.

The remaining key and non-key issues, 2) Aspen stands, 3) Riparian vegetation 4) Upland vegetation, 6) Wildlife, fish and plant TES species, MIS, and species of local concern, 6a) Bighorn Sheep, 7) Water quality, 8) Invasive and noxious weeds are addressed in Wildlife, Economics, Aquatics, Rangeland Vegetation, and Invasive Species Specialist Reports and project files.

This report is arranged to describe the affected environment and environmental consequences that apply to all allotments in the described area (Watershed-wide) and those that apply to specific allotments only (Allotment specific).

Affected environment descriptions and effects analyses were arrived at through review of PRRD 2210, 2230, and 2240 files, review of the Revised Forest Plan, and other handbook, manual, and internal reference material, along with personal experience of the authors. The analysis included review of livestock grazing reference material from the early 1900's, but focused approximately on the past 20 years. Spatial context was the project area, with the exception of cumulative effects.

Table 4 lists Potential Cumulative Effects Considerations Relevant to Cumulative Effects Analysis. Table 2-5 lists Associated Adaptive Management Actions in the Tensleep Creek Watershed that may be conducted on allotments in the analysis area that are either administrative in nature or were analyzed in other NEPA endeavors.

Legal and Administrative Framework for this analysis:

- The Bighorn National Forest Land and Resource Management Plan (Forest Plan) revised 2005.
- FSM2200 – this manual summarized laws and regulations governing rangeland management and forest planning.
- FSM2600 – this manual summarizes laws and regulations governing fish and wildlife management and forest planning.
- R-2 Rangeland Analysis and Management Training Guide
- FSH 2209.13 – Grazing Permit Administration Handbook
- FSH 2609.13 – Wildlife and Fisheries Program Management Handbook
- Code of Federal Regulations (CFR) 36
    - ♦ 219 Planning
    - ♦ 222 Range Management
    - ♦ 241 Fish and Wildlife

- National Forest Management Act (NFMA) of 1976 – this act identifies information requirements concerning NFS grazing and browsing resources.
- Section 8 of the Public Rangelands Improvement Act (PRIA) of 1978 – this section allows for consultation and cooperation in the development and execution of allotment management plans for grazing permits.
- Reorganization Act of 1994 amended the 1987 Agricultural Credit Act to provide for mediation of grazing permit cancellation and suspension actions as a part of the existing administrative appeals process.
- Section 504 of the Rescissions Act of 1995, Public Law 104-19, directs the Forest to complete site-specific National Environmental Policy Act Analysis and decisions on allotments

Affected Environment: Tensleep and Rock Creek - *Watershed-wide*

Issue 1) Vacant allotments

There are no vacant cow allotments, and 3 vacant sheep allotments in the Tensleep Watershed: Leigh Creek S&G, Willow S&G, and McLain Lake S&G (Project Area Map). Although no term grazing permit lists these allotments in its Part 1, the Forest Service has authorized grazing on an annual basis for all or portions of each, described in Allotment-Specific narrative below.

Issue 5) Socio/Economic

Grazing by domestic livestock has occurred on rangelands within the project area since the late 1800s. The industry has been an integral part of the local community economy, development, and lifestyle. For the livestock producers, summer forage on the Tensleep Watershed Allotments has represented a vital part of their total forage program. Term grazing permits for livestock grazing, normally issued for 10-year periods, are in effect on most, but not all allotments. In many cases vacant allotments have been stocked through annual authorization to existing permittees on nearby allotments.

Permit holders pay a grazing fee for use of forage each year (set by a formula prescribed by law and executive order) and are required to abide by terms and conditions of their permit which address livestock and land ownership, rangeland improvements, resource concerns, management practices and requirements, etc. Implementation of required management practices and the long-term effects of livestock use on the environment are monitored, and adjustments are made, as needed, to assure compliance with permits and to address other resource concerns.

Desired conditions for rangeland vegetation are described generally in the Forest Plan and are made more specific for individual allotments through the allotment level NEPA analysis and decision. Allowable forage utilization levels, along with other standards and guidelines, are developed in the analysis document as design criteria and are then stipulated on a site-specific basis. Key areas are identified for implementation monitoring. When livestock graze to allowable utilization levels or otherwise meet required standards, livestock are to be moved from the pasture by permit holders, or removed from the allotment for the season in the case of pastures grazed last in rotation. The Forest Service Region 2 Rangeland Analysis and Management Guide provides information on documenting rangeland monitoring, inventory, analysis, and management activities.

Livestock grazing (and in some instances, grazing by large wild ungulates) tends to have the greatest influence on the following, which occur within the project area:

- Low-gradient riparian and wetland areas.
- Fine textured soils on relatively low slopes with a minimal amount of rock, cobble, or boulders.
- Open canopy or low shrub vegetation types.
- Areas near available water (although there may be some avoidance of standing water areas).

The magnitude of the influence depends on the timing of use, the kind of livestock (sheep vs. cattle), the intensity of grazing use, the duration and frequency of grazing, and the associated management practices, including the level of permittee interest and involvement. Stocking levels by themselves are not a critical management factor but are an outcome of implementation of design criteria for timing, intensity, duration and frequency. Stocking rates may be adjusted annually or permanently depending on resource conditions and monitoring findings and permittee effectiveness in implementing design criteria.

Some recreational horse use occurs on several allotments. Use of ATV's by the recreating public is common in most allotments. These uses can result in forage use and impacts to streams and vegetation that conflict with objectives and plans of term grazing permit holders. One common effect from recreation use occurs when Forest visitors open gates along National Forest System roads and trails to pass through and then do not close them. This frequent occurrence allows livestock to drift into pastures, allotments, roadways, or other areas where they are not intended to be and often results in unplanned livestock use and disruption of planned management.

Grazing permits require that stockmen keep livestock in designated areas. To comply, and to minimize the task of gathering and returning livestock, a rapid response is necessary, and can incur considerable expense to the responsible permit holder. This issue is of particular concern where access is limited and response time by permittees to livestock concerns can be very time-consuming. Use of ORV's for recreation has increased immensely in recent years throughout the watershed, accelerating this problem and making livestock management throughout this area more difficult. In some cases, cattleguards can replace gates, but materials, installation, and maintenance are costly.

Current allotment management on each of the 13 allotments in this report is summarized in the following Allotment specific discussions and documents: Attachment "A" Current Management, Attachment B Stocking, Attachment B1Stocking Data, Attachment B3 actual use data, Attachment C Pasture Sequence, Attachment D and D1 Long Term Monitoring and Attachment F Permitted Use.

Affected Environment: Tensleep and Rock Creek - *Allotment Specific*

Issues 1 and 5

Baby Wagon S&G

Permitted use for Baby Wagon and Hazelton allotments is as follows:

Table A-1, Permitted use on Baby Wagon and Hazelton S&G Allotments

Allotment	*Livestock #*	*LS Kind*	*LS Class*	*Use From*	*Use To*	*Days*	*AUMs*
Baby Wagon	520	Sheep	Mature	07/11	08/31	52	267
Hazelton	1,000	Sheep	Ewe/lamb	07/06	09/05	62	612
							879

The most current Allotment Management Plan (AMP) for Baby Wagon S&G Allotment (Appendix E) was signed March 5, 1971 by Forest Supervisor Joe O'Rourke. Stocking levels were not disclosed in the AMP. 1971 actual use data lists 1000 mature permitted for 07/11 – 08/31 on Crazy Woman and Baby Wagon S&G allotments together with 1333 yearlings listed in lieu of mature. The AMP states that the allotment formerly consisted only of the Crazy Woman drainage, but in 1948 it was combined with the Baby Wagon Allotment. Records show that Baby Wagon and Crazy Woman allotments were run together through 1987, permitted at 1333 yearling sheep from 07/11 – 08/31 for a total of 462 AUMs. Since 1992 Baby Wagon S&G has been permitted separately at 520 ewe/lamb pairs 07/11-08/31 accounting for 267 AUMs. Shortly after 1992 Baby Wagon S&G allotment began to be managed jointly with Hazelton S&G Allotment, since one permittee has been permitted both allotments.

In subsequent years, grazing on portions of the vacant (adjacent) Crazy Woman S&G and McLain Lake S&G allotments was also authorized to the same permittee annually and they were managed with the Hazelton- Baby Wagon rotation using the same band of sheep. Permitted and authorized sheep numbers and season of use were not changed. By doing so, the forage base for the permitted use was greater, overall stocking lighter, and flexibility in management enhanced. The intent of the annual authorization was not to increase authorized AUM's but rather to disperse the permitted AUM's over a greater resource area.

As described above, Hazelton S&G Allotment is permitted as a separate allotment. The most current Allotment Management Plan (AMP) for Hazelton S&G Allotment (Appendix E) was approved April 21, 1984 by Forest Supervisor Jack Booth. Permitted stocking was listed at 1000 ewe/lamb pairs accounting for 612 animal months (AM). Permitted dates were listed as 07/13 through 09/15. While management adjustments have been made to include Hazelton Allotment in the Hazelton-Baby Wagon rotation, Hazelton remains separately permitted at the 1984 AMP level from 07/06-09/05.

Livestock grazing in the Crazy Woman watershed was described in a 1998 analysis. A 09/30/1998 decision stated that the upper portion of Crazy Woman S&G Allotment would be evaluated for addition to other sheep allotments as they are considered in the allotment planning process. Grazing use has been authorized on a trial basis.

Trailing of livestock to the allotment is authorized via the Gold Mine Road, which serves as a sheep driveway to areas south of the Forest. This driveway originates off forest and travels through the South Canyon C&H and Leigh Creek S&G Allotments prior to accessing Hazelton S&G. Corrals on the Leigh Creek/Hazelton Allotment border are used by the permittee to gather sheep. Corralled sheep can then be moved into Hazelton Allotment or herded quickly across US Highway 16 (to access Baby Wagon). Historic over-utilization of the stock driveway may influence future pasture resting and/or rotation sequences. Historically, trailing to and from Baby Wagon, Crazy Woman, McLain Lake, and Hazelton allotments occurred via the Crazy Woman-Muddy Creek sheep driveway located to the east.

Instances have occurred where a particular pasture is used heavily related to difficultly with trailing onto forest. Adjustments are made in these cases for light use of that pasture in the rotation for the following year, some as short as five days use or less.

Dry Tensleep C&H Allotment

This allotment is currently stocked as follows:

Table A-1, Permitted use on Dry Tensleep Allotment, December 2009

Permit	*Livestock #*	*LS Kind*	*LS Class*	*AU Eq*	*Use From*	*Use To*	*Days*	*AUMs*
#1 (North)	285	Cattle	Mature	1.32	06/23	10/08	~~107~~108	~~1323~~1336
#2 (South)	102	Cattle	Mature	1.32	06/23	10/08	~~107~~108	~~474~~478
								~~1797~~1814

The most current Allotment Management Plan (AMP) for Dry Tensleep Allotment (Appendix E) was signed January 13, 1984 by Forest Supervisor Edward Schultz and the three permittees on the allotment at that time. Permitted stocking was listed at 382 cow/calf pairs accounting for 1375 animal months (AM). Permitted dates were listed as 6/23 through 10/8 with an option to enter the allotment before 6/23 at the District Ranger's discretion and based on vegetative development and range readiness. Also, an option was included to stay in the last pasture beyond 10/8 depending on the overall allotment management and utilization.

In 1983, the Forest Service and permittees developed a system to divide the allotment into four pastures using fences and natural boundaries, to implement a deferred-rotation. Numerous range improvement projects were planned based on this system which required the re-orienting of fences and the completion of a livestock water pipeline system. Since that time livestock pipelines and springs have been developed to provide water and aid in livestock distribution. Existing fences and water developments have been improved. Sagebrush treatment has been completed to improve availability of forage (further described in the Rangeland Vegetation portion of this report).

Since the time of the above mentioned AMP, the use dates have not changed with little change to the permitted animal numbers. Permits have been consolidated so that now there are only two term permits (Table A-1 below). From 2001 to present time, the Antelope Pasture (in this discussion called 'South') has been allocated to one permit holder, and the remainder of the Dry Tensleep Allotment (called 'North') to another; they have been managed as units independent of one another.

Garnet Creek S&G Allotment

This allotment is currently stocked as follows:

Table A-1, Permitted use on Garnet Creek S&G, December 2009

Permit	*Livestock #*	*LS Kind*	*LS Class*	*AU Eq*	*Use From*	*Use To*	*Days*	*AUMs*
Garnet Creek	1250	Sheep	Mature	0.3	7/8	9/12	67	826

The most current Allotment Management Plan (AMP) for Garnet Creek S&G Allotment (Appendix E) was signed February 17, 1984 by Forest Supervisor Edward Schultz. Permitted stocking was listed at 1250 ewe/lambs accounting for 2700 animal months (AM). Permitted dates were listed as 07/08 through 9/12 at the District Ranger's discretion and based on vegetative development and range readiness. It described a herded, six-pasture, deferred-rotation system to be implemented in 1983.

Garnet Creek S&G continues to be grazed with a rotation grazing strategy in which season of use is changed year-to-year. Open herded sheep on these allotments can be readily moved to specific areas in order to maintain desired deferment patterns, and may not be shown in data as submitted.

Guard dogs have been an important asset to grazers for predator control and maintaining viable sheep grazing operations. Increased recreation in the area has created conflicts between territorial guard dogs and recreationists.

In the case of Garnet Creek S&G allotment, use data validates the current permitted level.

Trailing of livestock to the allotment is authorized via the Gold Mine Road sheep driveway to the south. This driveway originates off forest and travels through the South Canyon and Leigh Creek Allotments prior to accessing Hazelton. The corrals on the Leigh Creek/Hazelton allotment border are used by the permittee to gather sheep. Corralled sheep can then be moved into Garnet Creek S&G Allotment or herded quickly across US Highway 16. Historic over-utilization of the stock driveway may influence future pasture resting and/or rotation sequences. Historically, trailing to and from Baby Wagon, Crazy Woman, Garnet Creek, Hazelton, and McLain Lake S&G allotments may also have occurred via the Crazy Woman-Muddy Creek sheep driveway located to the east.

The term grazing permit holders have occasionally been granted authorization to use motorized vehicle travel in areas not open to this use by the public. This authorization is infrequent, and has been limited to instances where materials must be hauled in for specific one-time project work.

Hazelton S&G Allotment

Current management of Livestock Grazing on the Hazelton S&G Allotment is summarized in the Baby Wagon S&G Allotment discussion above.

Leigh Creek

Leigh Creek S&G allotment has been vacant since 1992. In that year the permittee was granted personal convenience non-use, and then on June 1 1993, the permit was waived back to the Forest Service "to be used to improve forage conditions on the Tensleep and Tounge Ranger Districts."

Beginning in 1997 use on Leigh Creek S&G has been authorized on an annual basis to be run with the Upper Meadows permitted sheep. The intent has been to "facilitate resource recovery of the meadows (Units #1 S. Meadow & #2 N. Meadow) adjacent to East Tensleep Creek through a significant reduction of the time the livestock *are* on that area".

The most current Allotment Management Plan (AMP) for Leigh Creek Allotment (Appendix E) was signed August 22, 1983, by Forest Supervisor Edward Shultz and May 17, 1983 by permittee Clifford Brubaker. The permitted stocking was listed at 1000 ewe/lambs from July 10 to August 25, approximately 1500 animal months (AM). Leigh Creek Allotment was permitted to be used on an "every other year" basis where it would be grazed one year and rested the next.

Over the years several inquiries have been made into converting Leigh Creek Allotment from a sheep and goat permit to a cattle and horse allotment. A range analysis was conducted in 1995 that concluded that the allotment was best suited for sheep grazing.

Leigh Creek has remained vacant since 1993, although grazing has been authorized on an annual basis along with permitted sheep on Upper Meadows S&G Allotment. Leigh Creek S&G was added as a separate unit in rotation. A Refer to Upper Meadows Allotment Current Management (Attachment A) for more detailed management information since annual authorization began in 1997.

Some recreational horse use occurs on the allotment along with some ATV use. Canyon Creek and Gold Mine roads receive heavy summer traffic. There is a large area along Canyon Creek in South Canyon C&H Allotment, just south of the Leigh Creek Allotment, which is excluded from grazing that has become a popular area for recreational vehicles.

A stock driveway exists along the eastern boundary of Leigh Creek Allotment. The driveway originates off forest and travels through the South Canyon Allotment before reaching Leigh Creek Allotment. Sheep are trailed through South Canyon Allotment but are directed to spend as little time as possible traveling to and from the Leigh Creek. Historic over-utilization of the stock driveway may influence future pasture resting and/or rotation sequences.

There is a small portion of the Leigh Creek Allotment that is located north of Highway 16. There is very little suitable rangeland in this portion of the allotment and access is limited due to being bisected by Highway 16. This portion of the Leigh Creek Allotment may be better utilized if it were included in Garnet Creek Allotment where access is not such a limiting issue.

McLain Lake S&G

The most current Allotment Management Plan (AMP) for McLain Lake S&G Allotment (Appendix E) was approved March 1, 1966 by acting Forest Supervisor Joe O'Rourke. Permitted stocking was listed at 1200 ewe/lamb pairs accounting for 793 animal months (AM). Permitted dates were listed as 07/01 through 09/05. Season of use was subsequently permitted at 07/06 through 09/10 (in 1981) maintaining the total of 793 AUM's.

The term grazing permit on McLain Lake S&G Allotment was valid until 1987 when foreclosure occurred regarding base property, and it has remained vacant since that time. The allotment is considered particularly difficult for the livestock manager to administer for a variety of reasons: there are no roads open to motorized travel on the allotment, access is difficult, the season of use is short, and much of the allotment is not suitable for livestock grazing because of low production, shallow soils, forested areas, rock, and steep terrain.

Additional current management discussion of Livestock Grazing on the McLain Lake S&G Allotment is summarized in the Baby Wagon S&G Allotment discussion above.

Monument C&H

The most current Allotment Management Plan for Monument C&H Allotment (Appendix E) was completed in 1980. There is one term grazing permit holder on this allotment. Permitted stocking was, and remains, at 250 mature from 07/01 to 09/20. A grazing strategy was described where the allotment was managed under a modified two unit deferred rotation system. There are statements in the 1980 AMP indicating difficultly maintaining this system due to lack of adequate unit pasture fences and available water sources. New developments were planned at that time to intensify management. The previous several years' heavy utilization had, at that time, resulted in a 33 percent reduction in numbers. According to the 1980 AMP, a three unit deferred rotation system was planned.

A reduction of 100 head of livestock and a 15-day delay in starting grazing was put in place to reverse forage concerns. There is mention of restoring some livestock numbers when vigor increased. Alternatives include rest rotation grazing and further reducing numbers if the deferred-rotation system failed to provide the expected vegetative response.

Numerous range improvement projects were planned including installation of water pipelines, water tanks, fencing, and maintenance/construction of ponds. Since that time livestock pipelines and springs have been developed to provide water and aid in livestock distribution, some in conjunction with the neighboring South Canyon C&H Allotment. Existing fences and water developments have been improved. Since 1980, the permitted stocking has not changed. (Table A-1 below).

Table A-1, Permitted use on Monument C&H Allotment, December 2009

Allotment	LS #	LS Kind	LS Class	Use From	Use To	AUMs
Monument C&H	250	Cattle	Mature	07/01	~~09/30~~09/20	~~998~~890

The rotation strategy described in the 1980 AMP was followed until 2002 when the use of the permittee's bordering private land was incorporated into a three pasture deferred rotation. Authorized AUMs are at or below that Permitted. This was and has been authorized annually in years since then.

A grazing strategy has been applied that does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August), season of use has been rotated so plants are not grazed at the same time of year in successive years, and grazing periods are in most cases less than 14 days prior to August 1st.

The Permittee on Monument C&H Allotment owns land adjoining the Bighorn National Forest, thus lending itself to additional flexibility in regards to alternating livestock use. Forage use levels are often very light, partly due to poor livestock water availability.

Actual stocking in AUMs has been significantly less than permitted in many of the past 10 years. While drought and subsequent low forage may have been partly responsible for this tendency, lack of water availability on-Forest is a more likely rationale. Providing on-Forest water for livestock in these units has historically been a challenge. Monument C&H Allotment has no notable riparian areas, adding to the challenge. This is especially true for the last Forest Service unit in the rotation during drier years. One consequence is that the permittee's private pasture (and its livestock water) provides an alternative to forego the last Forest pasture in the rotation, or to reduce the level of use in that last pasture, and the allotment as a whole.

Conifer encroachment and sagebrush density have increased in many areas of the Allotment, reducing available forage and in some cases livestock movement patterns and opportunities.

North Canyon C&H

The most current Allotment Management Plan (AMP) for North Canyon C&H Allotment (Appendix E) was signed June 15, 1987 by Acting Forest Supervisor Frank Smedley and the two permittees on the allotment at that time. Permitted stocking was listed at 800 cow/calf pairs from July 1 to October 5, a change from the previous permitted use of 830 pairs from June 16 to October 15. The change was reportedly made to bring permitted stocking more closely in line with capacity estimates, to reduce over utilization of the primary range, and to improve range and forage conditions.

Plans were made for installing a cross-fence and livestock water pipeline in the Leigh Creek Vee's area, and implementing a deferred rotation grazing strategy.

Since that time livestock pipelines and springs have been developed to provide water and aid in livestock distribution. The new fence in Leigh Vee's was constructed creating East Vee and West Vee Pastures, and existing fences and water developments have been improved. Sagebrush treatment has been completed to improve availability of forage (further described in the Rangeland Vegetation portion of this report).

Since the time of the above mentioned AMP, permitted dates, numbers, and AUMs have not changed. Permits have been consolidated so that now there is only one term permit (Table A-1 below).

Table A-1, Permitted use on North Canyon Allotment, December 2009

Allotment	LS #	LS Kind	LS Class	Use From	Use To	AUMs
North Canyon C&H	800	Cattle	Mature	07/01	10/05	3,368

As described in the 1987 AMP, larkspur and late readiness due to elevation limit High Park Pasture to mid season use each year. The lower portion of the Canyon Unit is used for trailing to and from the allotment. An attempt has been made to alternate use and trailing year-to-year between early/late in this unit.

Water availability in the Leigh Vee's has been a limiting factor for livestock grazing. In some dry years the rotation between East and West Vee cannot be accomplished due to water availability in springs and stock pipelines.

Much of North Canyon C&H Allotment falls in an area designated as closed to travel off designated roads and trails. The term grazing permit holder has historically been granted authorization to use motorized vehicle travel in areas not open to this use by the public. Use is normally limited to the period mid-June through mid-October for the purpose of accessing High Park Corral to load livestock, to access livestock water pipeline for maintenance in the Vee's, to the cow camp for access on a closed logging road, to reservoirs for maintenance, and in instances where materials must be hauled in for specific one-time project work.

A grazing strategy has been applied that does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August). To the extent possible given pasture configurations, season of use has been rotated so plants are not grazed at the same time of year in successive years, and grazing periods are less than 14 days prior to August 1st. Although there is some overlap by pasture date, livestock are likely grazing different areas going up versus down, even when they are in the same unit for a portion of the same season. Records indicate that in most years compliance with forage utilization guidelines has been satisfactory; where guidelines are not met, appropriate administrative actions follow.

The Authorized and Actual use for much of the past 10 years has been much lower than Permitted. This reflects adjustments made through agreement with the Forest Service to accommodate prescribed burning, and drought. Expectations are that when recovery from recent prescribed burning occurs, actual stocking levels will be restored to a level closer to Permitted.

Rock Creek C&H

The most current Allotment Management Plan for Rock Creek C&H Allotment (Appendix E) was completed in 1984. There is one term grazing permit holder on this allotment. Permitted stocking was, and remains, at 300 mature from 07/01 to 09/26. A grazing strategy was described where the allotment was divided into four pastures, and two herds of cattle were alternated through two separate two-pasture rotations. In many cases pasture boundaries are not fenced "cow-tight" but are represented by expanses of forested areas, steep terrain, or other natural barriers. Several range improvement projects were planned in the 1984 AMP.

Pasture boundaries where livestock drift could occur do not lend themselves to separation by fencing because of fencing, terrain, cover, etc. although this option has been considered through the years. Such fence would be difficult and costly to construct and maintain, and it could be a barrier to big game movement.

Since 1984, the permitted stocking has not changed. (Table A-1 below).

Table A-1, Permitted use on Rock Creek C&H Allotment, December 2009

Allotment	LS #	LS Kind	LS Class	Use From	Use To	AUMs	Allotment Total AUM
Rock Creek C&H	300	Cattle	Mature	07/01	09/26	1,146	1,146

Salt has been located to help draw livestock away from riparian and other favored areas, and permit holders regularly have moved livestock out of these areas and into other areas of available forage. Two cow camps, French Creek and Ginger's Cabin, have been available to and used by riders that have been hired on a full time basis in most years.

Incidental use of cattle across the Forest Boundary onto the adjacent Bud Love Elk Winter Range (managed by the Wyoming Game and Fish Department) has occurred to a limited extent through the past 10 years. When this occurs, forage-use planned for Rock Creek C&H Allotment does not occur. An electric fence has been installed at Cougar Canyon to limit this drift, and has been moderately successful.

Conifer encroachment has increased in many areas of Rock Creek C&H Allotment, reducing available forage and in some cases livestock movement patterns and opportunities.

Much of Rock Creek Allotment is in an area designated as closed to travel off designated roads and trails. In these instances the term grazing permit holders are required to request and have written authorization for off-road motorized travel. In the case of Rock Creek Allotment, files reflect no record that such a request has been made or granted.

An alternate use strategy has been implemented supporting an offset grazing pattern for pastures in an early-use/late-use pattern. This rotation strategy, described in the 1984 AMP, was followed until 2007, when a one-herd four pasture rotation was implemented on a trial basis at permittee request. The grazing strategy applied does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August). Season of use has been rotated so plants are not grazed at the same time of year in successive years, and to the extent possible grazing periods are less than 14 days prior to August 1st. Although there is some overlap by pasture date, livestock are likely grazing different areas going up versus down, even when they are in the same unit for a portion of the same season. Some drift of livestock between pastures has occurred due to the use of natural barriers as pasture boundaries. Records indicate that in most years compliance with forage utilization guidelines has been satisfactory; where guidelines are not met, appropriate administrative actions follow.

Actual stocking in AUMs has been similar to permitted in most of the past 10 years, validating the permitted numbers and season as appropriate for the allotment.

South Canyon C&H

The most current Allotment Management Plan (AMP) for South Canyon C&H Allotment (Appendix E) was prepared January 6, 1969 by District Ranger Jack Cameron, signed February 25, 1969 by the Forest Supervisor. Permitted stocking was listed at 1215 cow/calf pairs from June 16 to October 15. In 1971 the South Canyon Allotment was split into two separate allotments including South Canyon C&H and Monument C&H. After the division of the South Canyon C&H Allotment a new permit was created authorizing 815 cow/calf pairs from June 26 to October 15. An additional AMP was prepared for the South Canyon C&H Allotment in 1980 however it was never signed. The 1980 proposal suggested further reducing the grazing season to July 1 to October 1 along with a 10% reduction in numbers. Currently, 465 cow/calf pairs are permitted to graze from July 1 to October 1. Changes over the years have reportedly been made to bring permitted stocking more closely in line with capacity estimates, to reduce over utilization of the primary range, and to improve range and forage conditions.

Plans were made for installing a drift fence between the Leigh Creek Unit and the Canyon Creek Unit as well as developing water in the Childs Creek Unit, Trails and Beef Units, and the Leigh Creek Unit. Both the drift fence and water developments were planned in order to facilitate either a four or a five-pasture deferred rotation grazing system.

Since that time livestock pipelines and springs have been developed to provide water and aid in livestock distribution. Portions of the drift fence between Leigh Creek and Canyon Creek have been completed as well as numerous other small drift fence projects. Sagebrush treatment has been completed to improve availability of forage (further described in the Rangeland Vegetation portion of this report).

Over the years adjustments have been made to the South Canyon C&H Allotment. Permitted livestock numbers as well as the season of use have been reduced in order to bring the Allotment more in line with capacity estimates, to reduce over utilization of the primary range, and to improve range and forage conditions. The following is a table showing the current permitted use on South Canyon Allotment (Table A-1 below).

Table A-1, Permitted use on South Canyon Allotment, December 2009

Allotment	LS #	LS Kind	LS Class	Use From	Use To	AUMs
South Canyon C&H	465	Cattle	Mature	07/01	10/01	1,877

As described in the 1969 AMP and 1980 AMP proposal, larkspur and late range readiness due to elevation limit the Leigh Creek and Canyon Creek Units to mid season use each year. Water availability has been a limiting factor in the lower elevation portions of Childs Creek, Upper Trails, and Leigh Creek. Salting as a management tool is used; it is located to help draw livestock away from riparian and other favored areas as well as highly visible roads and trails. The permit holder frequently uses riders to move livestock out of riparian areas and into other areas of available forage.

A cow camp located in the southern portion of the Canyon Creek Unit is used as a management tool to help move and distribute cattle throughout the allotment. The cow camp is well maintained but has had problems recently with gates being left open by public recreation.

Conifer encroachment and sagebrush density have increased in many areas of the Allotment, reducing available forage. Attempts have been made to address dense sagebrush concerns through prescribed burning and other treatments, and are described in the Rangeland Vegetation portion of this report.

Much of South Canyon C&H Allotment falls in an area designated as closed to travel off designated roads and trails. The term grazing permit holder has occasionally requested permission to use motorized vehicle travel in areas not open to this use by the public. Use has been granted but is normally limited to the period of mid-June through mid-October for the purpose of maintaining range improvements.

A grazing strategy has been applied that does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August). Season of use has not been rotated so plants are not grazed at the same time of year in successive years. In some instances grazing periods are greater than 14 days prior to August 1st. Although there is some overlap by pasture date, livestock are likely grazing different areas going up versus down, even when they are in the same unit for a portion of the same season. Some drift of livestock between pastures has occurred due to the use of natural barriers as pasture boundaries. Records indicate that in most years compliance with forage utilization guidelines has been satisfactory; where guidelines are not met, appropriate administrative actions follow.

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The Authorized and Actual use for much of the past 10 years is consistent with Permitted. There are some fluctuations in the past 10 year's data but this to be expected given annual seasonal fluctuations as well as fluctuations in the livestock market.

Tensleep Canyon C&H

The most current Allotment Management Plan for Tensleep Canyon C&H Allotment (Appendix E) was completed in 1967. There is one term grazing permit holder on this allotment. Permitted stocking was, and remains, at 175 mature from 07/01 to 09/30.

A grazing strategy was described where the allotment was used in an on-and-off capacity in some areas and deferred rotation in others. The 1967 AMP makes note of pasture boundaries where most of the applicable Forest boundary had been recently fenced. There is indication that said fencing would phase out the on-and-off grazing practice resulting in a two-unit deferred rotation practice.

Another emphasized issue in the 1967 AMP was the concern of elk use; competition for forage is noted with estimates of more elk usage in the years to follow. A decision was made in the 1967 AMP to "reserve Section 23 entirely for game use, fence and control cattle use on the on-and-of portions of sections 27 and 33… ". A statement that, "Present elk harvest is not adequate" is included.

Further, the 1967 AMP indicates the Tensleep Canyon Allotment would be managed as a cattle term permit, a change from the majority of sheep usage exercised in the previous decade.

Since 1967, the permitted stocking has not changed (Table A-1 below).

Table A-1, Permitted use on Tensleep C&H Allotment, December 2009

Allotment	*LS #*	*LS Kind*	*LS Class*	*Use From*	*Use To*	*AUMs*
Tensleep Canyon C&H	175	Cattle	Mature	07/01	09/30	699

The rotation strategy described in the 1967 AMP was followed until 1989. Since then the authorized grazing system deviated from the permitted 175 mature for three months to 525 for one month. This facilitated a management change of the season long use on-Forest to a deferred rotation strategy including private and other grazing lands, without change to the permitted or authorized AUMs. This intensive grazing system was done in an "early" and "late" rotation to ensure forage growth stages are not that of the previous year.

Salt has been located to help draw livestock away from riparian and other favored areas. Permittees have not been known to uses riders to address livestock distribution. Fences and livestock water pipelines have been maintained. A fence separating North and South Willow Pasture was reconstructed in recent years to better manage livestock use in both units. An electric fence has been used for several years to limit livestock use in the Dry Tensleep riparian unit below Willow Spring.

Much of Tensleep Canyon Allotment falls in an area designated as closed to travel off designated roads and trails. The term grazing permit holder has on occasion been granted authorization to use motorized vehicle travel in areas not open to this use by the public. On this allotment such authorization is infrequent, and has been limited to instances where materials must be hauled in for specific one-time project work.

US Highway 16 runs through the lower Canyon portion of the allotment (called North and South Highway Units). Poor, non-existent, or poorly maintained fence has resulted in livestock/motorist conflicts for many years. This issue was recently resolved to a large degree when WYDOT installed an improved electric fence to portions of the ROW.

Some recreational horse use occurs on the allotment but the majority of recreation use is from ATVs and UTVs, hikers and fishermen in the Highway Units. This use by the recreating public in this allotment is extensive and considered "high-use". The area receives many recreational hunters in the early fall when livestock are being gathered and brought off the allotment. One common effect from recreation use occurs when Forest visitors open gates along National Forest System roads and trails to pass through and then do not close them**.** This occurrence allows livestock to drift into pastures, allotments, roadways, or other areas where they are not intended to be and often results in unplanned livestock use and disruption of planned management. The fence along FDR 413, forest boundary fences, and the closed road below Boulder Park Campground have been identified as problem areas in this regard.

Boulder Park Campground borders Tensleep Canyon C&H Allotment to the southeast. Livestock have drifted into the campgrounds on numerous occasions due to the poor condition of fences. Though attempts to address the situation have worked in the past, the issue has escalated with recent reconstruction and updates to the campground. The increasing level of recreational campers intensifies the need for sufficient fencing and careful monitoring of use in this area.

Conifer encroachment and sagebrush density have increased in many areas of Tensleep Canyon C&H Allotment, reducing available forage and in some cases livestock movement patterns and opportunities.

A grazing strategy has been applied that does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August). For the most part, season of use has been rotated so plants are not grazed at the same time of year in successive years, and to the extent possible grazing periods are less than 14 days prior to August 1st. The South rim pasture receives late use each year. Although there is some overlap by pasture date, livestock are likely grazing different areas going up versus down, even when they are in the same unit for a portion of the same season. Occasional instances of heavy grazing have been noted and addressed administratively. Additional fences and changes to management have been proposed and implemented.

Actual stocking in AUMs has been similar to permitted in most of the past 10 years validating the permitted numbers and season as appropriate for the allotment.

Upper Meadows S&G

Permitted use for Upper Meadows S&G allotment is as follows: (Table A-1 below).

Table A-1, Permitted use on Upper Meadows S&G Allotment, December 2009

Permittee	*Livestock Sheep #*	*LS Kind*	*LS Class*	*AU Eq*	*Use From*	*Use To*	*Days*	*AUMs*	*Allotment Total AUM*
Anderson Ranch, Inc.	1200	Sheep	Mature	0.3	7/1	8/23	54	639	**639**

The most current Allotment Management Plan (AMP) for Upper Meadows Allotment (Appendix E) was signed May 30, 1986 by Forest Supervisor Edward Schultz. Permitted stocking was listed at 1200 ewe/lambs from July 1 to August 23 accounting for 2160 animal months (AM). Actual entry onto the allotment however, has always been based on vegetative development and range readiness.

Beginning in 1997 use of the vacant Leigh Creek Allotment was annually authorized under the Upper Meadows S&G permit. Additionally, in 2001 the Forest Service began authorizing portions of the vacant (adjacent) Willow S&G Allotment under the Upper Meadows S&G permit. Permitted sheep numbers were not changed; in several years the authorized length of season was extended (from 08/23 to 09/01, 8 days) as a result of additional available forage. With the addition of Willow and Leigh Creek S&G allotments, the forage base for the permitted/authorized use was greater, overall stocking lighter, and flexibility in management enhanced. The intent of the annual authorization was to disperse the

permitted AUM's over a greater resource area. Leigh Creek S&G and Willow S&G units were added as separate units in rotation. A complete analysis of the current management on Upper Meadows Allotment will include discussion of both Leigh Creek and Willow S&G Allotments in addition to the Upper Meadows Allotment.

During the grazing season sheep bands are managed using a permanent sheep herder utilizing an "open herding" system. A good herder is able to better distribute forage use, manage utilization along riparian areas, and control excessive bedding in sensitive areas (all of which were identified problems in the 1960's with an inadequate herder). The Forest Service has authorized extended stay permits to the permittee in order to facilitate this type of management.

Guard dogs have been an important asset to grazers for predator control and maintaining viable sheep grazing operations. Increased recreation in the area has created conflicts between territorial guard dogs and recreationists.

Since the time of the above mentioned AMP, permitted use on the allotment has not changed (Table A-1) however, over the past 10 years annual authorization has generally extended the grazing season from August 23 to September 1.

Canyon Creek Driveway originates off forest and travels through the South Canyon, Leigh Creek, and Garnet Creek Allotments before reaching the lower portions of the Upper Meadows Allotment. Sheep are trailed through these allotments but are directed to spend as little time as possible traveling to and from the Upper Meadows Allotment. Historic over-utilization of the stock driveway may influence future pasture resting and/or rotation sequences.

Much of Upper Meadows Allotment falls in an area designated as closed to travel off designated roads and trails. The term grazing permit holders have occasionally been granted authorization to use motorized vehicle travel in areas not open to this use by the public. On Upper Meadows Allotment this authorization is infrequent, and has been limited to instances where materials or camps must be hauled in for specific one-time project work.

A grazing strategy has been applied that does not allow for livestock grazing use in an individual unit during the entire vegetative growth period (considered early August). In many cases, but not all, season of use has been rotated so plants are not grazed at the same time of year in successive years, and grazing periods are less than 14 days prior to August 1st. Actual use shows Leigh Creek is consistently being used first in the season and North Meadow and South Meadow are not consistently being alternated between early and late use. In the case of Upper Meadows S&G allotment, use data validates the current permitted level. Records indicate that in most years compliance with forage utilization guidelines has been satisfactory; where guidelines are not met, appropriate administrative actions follow.

Willow S&G

Willow S&G Allotment has been vacant since the term grazing permit was cancelled in April of 1998 due to willful violations of the permit regarding ownership of base property. Since 1999 use on Willow S&G has been authorized on an annual basis to be run with the Upper Meadows permitted sheep. The intent has been to facilitate resource recovery in the Upper Meadows S&G Allotment. Willow S&G was added as a separate unit in rotation with Upper Meadows and Leigh Creek S&G Allotments. A Refer to Upper Meadows Allotment Current Management (Attachment A-1) for more detailed management information since annual authorization began in 1997.

The most current Allotment Management Plan (AMP) for Willow S&G Allotment (Appendix E) was signed January 13, 1981 by Forest Supervisor Jack Booth and by the permittee on December 17, 1980. Permitted stocking was listed at 1400 ewe/lambs from July 1 to September 5 accounting for 2520 animal months (AM). Actual entry onto the allotment however, has always been based on vegetative development and range readiness.

Sheep are managed using a permanent sheep herder utilizing an "open herding" system. Guard dogs have been an important asset to grazers' for predator control and maintaining viable sheep grazing operations. Increased recreation in the area has created conflicts between territorial guard dogs and recreationists.

A special use horse pasture of approximately 35 acres has been fenced and authorized annually on a temporary basis. Records indicate that annual authorization began as early as 1980 if not sooner. The pasture is located in the Willow Creek area on the south end of the allotment, adjacent to US Highway 16. Permitted sheep have not had access to forage in this area as a result.

A stock driveway originates off forest and travels through the South Canyon, Leigh Creek, and Garnet Creek Allotments before reaching Willow. Sheep are trailed through these allotments but are directed to spend as little time as possible traveling to and from the Willow Allotment. Historic over-utilization of the stock driveway may influence future pasture resting and/or rotation sequences.

Environmental Consequences: Tensleep and Rock Creek - *Watershed Wide*

Issue 1) Vacant allotments

Alternative 1, No action no grazing: Direct and Indirect effects:
-Livestock would not be permitted to graze on project area allotments under alternative one. All allotments in the project area would be essentially vacant.

Alternative 2, Current management: Direct and Indirect effects:
-Livestock grazing by sheep would continue to be permitted on three allotments in the Tensleep Watershed that are currently permitted through annual authorization. Administrative vehicle for authorization would vary. Forest Service direction would be followed for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No.: 2209.13-2009-1)

Alternative 3, Adaptive management: Direct and Indirect effects:
-As described above in Alternative 2, livestock grazing by sheep would continue to be permitted on three allotments in the Tensleep Watershed that are currently permitted through annual authorization. Administrative vehicle for authorization would vary. Forest Service direction would be followed for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No.: 2209.13-2009-1)

-Alternative 3 does propose to change allotment boundaries of two vacant sheep allotments (Willow S&G and McLain Lake S&G), but only total acreage would change, as no suitable rangeland is within the acreage proposed for removal. No other effect to vacant allotments has been identified.

Cumulative effects for all alternatives:
Other vacant allotments occur in areas of the Forest that also may be available for grazing. Forest Service direction would continue to be followed for allocating all available forage (FSM 2209.13 Chapter 10 Interim Directive No.: 2209.13-2009-1)

Issue 5) Socio/Economic

Alternative 1, No action no grazing: Direct and Indirect effects:
-The No Grazing alternative would eliminate domestic livestock grazing on all allotments within the Tensleep and Rock Creek Watersheds. Existing permits would be cancelled with the one year notice as specified in FSH 2209.13 section 16.13 and 36 CFR 222.4(8). New term grazing permits would not be issued. Domestic livestock would not be used to manipulate vegetative conditions in this portion of the Forest. Maintenance of improvements by grazing permittees would not be necessary, required, or completed. There would be no need to apply livestock grazing standards and guidelines to these allotments.

-Livestock would have no conflict with heritage resources, recreation, wildlife, or other resources. There would be no soil impacts, streambank alteration, or impacts to vegetation by permitted livestock. Early seral plant communities would not be prevented from evolving to later seral communities due to livestock impacts. This would affect and could be a problem for plant species dependent upon early seral habitats.

-Grazing permittees may be reimbursed for their portion of range structural improvements on the allotment (36 CFR 222.6). Fencing, spring developments, and cow camps not needed would need to be removed.

-All AUMs permitted in these watersheds would be lost from the total permitted on the Bighorn National Forest. There would be no livestock grazing contributing to the local economy, community lifestyle, tradition, or culture. Part of objective 2, strategy 1 of the revised Bighorn National Forest Plan would not be met, while part would. ("Provide forage for livestock at a level that strives to maintain or exceed the year 2004 permitted stocking level of 113,800 Animal Unit Months (AUMs), while recognizing that stocking levels may be adjusted through the implementation of allotment management plans (AMPs) and administration of grazing permits."). Effects of this loss of AUMs would extend from the individual permits on each Allotment to the community as a whole.

Alternative 2, Current Management: Direct and Indirect effects:
-Guidelines direct that in areas where desired conditions are not being met forage use standards are to be adjusted until a satisfactory trend results. Areas currently identified are very few and are described in the Rangeland Vegetation specialist report. (Table 3: Key areas). In these cases, in alternative 3, adjustments in management would likely be authorized, but under alternative 2, no additional structure could be completed. Under Alternative 2, additional management adjustments such as riders or changes in season of use are more likely to result in fewer AUMs being grazed or greater expense on part of term permit holder.

-The expense of additional sheep herders would be greater under alternative 2 than 3 where better herding techniques would be the most likely management option.

-Should conditions deteriorate in both Alternative 2 and 3, more strict standards would likely result in shorter seasons of use and loss of AUMs. This loss would be realized from the total permitted on the Bighorn National Forest. Part of objective 2, strategy 1 of the revised Bighorn National Forest Plan would not be met, while part would. ("Provide forage for livestock at a level that strives to maintain or exceed the year 2004 permitted stocking level of 113,800 Animal Unit Months (AUMs), while recognizing that stocking levels may be adjusted through the implementation of allotment management plans (AMPs) and administration of grazing permits."). Effects of this loss of AUMs would extend from the individual permit to the community as a whole. Such loss is more likely in Alternative 2 than alternative 3 because of adaptive planning options. AUM loss is further described in the allotment specific discussion.

-Implementation of alternative 2 would result in continuation of current forage use and grazing strategies (exceptions described below). Revised Forest Plan guidelines and Bighorn National Forest Vegetation Grazing Guidelines would continue to be implemented.

-Use of vacant allotments in both Alternative 2 and 3 would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1). For both Alternatives 2 and 3 this may result in slightly lighter stocking rate for permitted allotments, adding to flexibility in management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Existing range improvements would be maintained to standard as specified in the term grazing permit, but no new improvements would be added without a separate NEPA analysis and decision.

Alternative 3, Adaptive management: Direct and Indirect effects:
-Where desired conditions are not being met under alternative 3, additional structures could be completed as part of the adaptive actions proposed. The loss of AUMs that may have occurred in these cases in alternative 2 (such as a result of additional management adjustments such as riders or changes in season of use) would not occur in alternative 3. AUM differences are further described in the allotment specific discussion.

-Continued deterioration of rangeland conditions would be less likely to occur under alternative 3 than alternative 2, reducing the likelihood of loss of AUMs described above.

-Existing range improvements would be maintained to standard as specified in the term grazing permit. New improvements proposed as part of the adaptive options would be available and implemented.

Cumulative effects for all alternatives:

-Livestock have had effects on the project area allotments at the same time as many other uses, and some effects are cumulative. Motorized and non-motorized recreation and roads result in soil disturbance and erosion. As noted in the soils section, there are likely similar effects from livestock. Although the effects from livestock are too small to quantify, they do cumulatively add to effects from roads, and vehicular use. Wildlife and livestock both impact vegetation by removing forage. Historically high stocking levels of livestock, and at times big game, have had a lasting effect on vegetative cover, composition and overall health. Those effects have declined over time but are still present to some degree. Removal of fine fuels vegetation by livestock or wildlife can also have the cumulative effect of reducing wildfire occurrence and rate of spread (see wildfire section). Fire suppression possibly combined with removal of competing herbaceous vegetation, has resulted in conifer encroachment, and a reduction in meadow size (available forage) in some areas that is expected to increase over time. Past timber harvest areas provided transitory rangeland at one time but this effect has largely passed with increasing conifer cover. Previous stocking rates may have been based to a degree on the availability of that transitory forage resource.

-Livestock grazing in this area today is complicated by factors such as the allocation of forage resources between livestock and wildlife and the effects of their activities, fisheries, and water quality; considerations necessary due to wildfire and prescribed fire management, recreation activities that result in gates being left open, forage being removed, livestock being poorly distributed, or impacts to the resource being unfairly attributed to livestock grazers. Most of these factors add to complexity and expense of the livestock operation that chooses to utilize forage in the project area as opposed to other sources of forage. Combined, these factors add expense to the permit, and may result in reduction in livestock grazing over time. However, private forage resources are very scarce and expensive in the local area. Forage availability on the National Forest provides a critical need for permit holders overall operations.

-Livestock management is generally considered more difficult on National Forest lands than on private lands for reasons described above. In addition, the business of livestock management is subject to factors most often not under the control of livestock operators, such as national security, tourism, land values and subsequent subdivision of base ranches, retirement of ‘baby-boomers’, labor prices and availability, foreign markets and lamb/calf prices, USDA budgets and farm programs, fuel prices, predator control, social values, federal policy, etc.

-Authorized use on the project area allotments has generally been lower than permitted and is likely to remain so. Recent NEPA decisions (e.g., Tongue, Piney, and Battle Park AMPs) have projected a decline in permitted AUMs. Alternative 1 would add the most to the trend of decreasing the number of AUMs grazed on the Bighorn NF, with Alternative 3 potentially adding the least, to the extent that the design criteria and adaptive measures are successful at meeting desired conditions. Improved forage production by reducing sagebrush densities and improved distribution opportunities created by the proposed water improvements and other structural

improvements should allow permitted AUMs under Alternative 3 to remain higher than under Alternative 2.

-Expectations are that the impact of recreation uses in the project area will increase as the population of local communities increases, and as more people nationwide continue to seek places like the Bighorn to recreate. ATV use in particular has seen a dramatic increase recently that is expected to continue (See Specialist Report for Recreation). Locally, the current boom in coalbed methane activity in the Powder River Basin has resulted in more demand for recreational use of the Bighorn, particularly for motorized uses, and this boom is expected to continue.

-Use of prescribed fire will likely increase in coming years due to a nationwide emphasis on fuels reduction. As described above, this can result in short term expenses and long-term benefits to livestock grazing.

-Cumulative effects under alternative 3 will be less than alternative 2 due to the adaptive management measures available.

Environmental Consequences: Tensleep and Rock Creek - *Allotment Specific*

Baby Wagon S&G Allotment

Issue *1) Vacant allotments*

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue *5) Socio-Economics*

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant McClain Lake S&G and Crazy Woman allotments would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for Baby Wagon allotment, adding to flexibility in management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Dry Tensleep C&H Allotment

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue *5) Socio-Economics*

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 3 Adaptive management: Direct and Indirect effects:
-Additional water developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Garnet Creek S&G Allotment

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue *5) Socio-Economics*

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 3 Adaptive management: Direct and Indirect effects:
-Construction of Jeep Road Division Fence (552158) to divide the Garnet Creek and Leigh Creek watersheds included as an option in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8).

-Construction of Gilligan Spring Exclosure (552159) and Bull Creek/High Park Pipeline Spring Exclosure Fence (504125) would remove a very small amount of forage from that available to permitted sheep.

-Removal of the portion of Garnet Creek/Hazelton Boundary Fence (552108) between Garnet Creek S&G and Leigh Creek S&G allotments would require expenditure of labor on the part of the permittee or Forest Service. It would eliminate restriction of sheep movement to that area, making use of that portion of Leigh Creek S&G by the adjacent permittee easier. Note that there is very little forage in that area, so any addition of AUMs to the adjacent permittee on Garnet Creek S&G allotment would be small.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion

Hazelton S&G Allotment

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue *5) Socio-Economics*

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant McClain Lake S&G and Crazy Woman allotments would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for permitted allotments, adding to flexibility in management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
- Construction of Leigh Creek Corral Spring (553154) and Leigh Creek Holding Pasture Fence (553155) would create a pasture to overnight livestock and provide water for this purpose, providing opportunity for time and energy savings on the part of the permittee, and increased economic efficiency.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Leigh Creek S&G Allotment

Issue 1) Vacant allotments

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant Leigh Creek S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant Leigh Creek S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for other permitted allotments, adding to flexibility in their management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states “Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use.” (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

McLain Lake S&G

Issue 1) Vacant allotments

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant McClain Lake S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3 the use of vacant McLain Lake S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for those permitted allotments, adding to flexibility in their management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Monument C&H

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 3 Adaptive management: Direct and Indirect effects:
-Additional water developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Removal of the Strip Pipeline and Tank A (508172A), Unit Division Fence (508170), Strip Pipeline and Tank (508172), and Monument Pipeline (508140) would require expenditure of labor on the part of the permittee or Forest Service.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

North Canyon C&H Allotment

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-On sites where it has been determined that current livestock use has an adverse effect to heritage resources, those effects would not be allowed to occur. There are two such sites on the North Canyon C&H Allotment. Given that no additional fences would be added under alternative 2, livestock use would need to be limited by other means such as additional riders, shorter time of use in a given pasture, or some combination of strategies. This would likely result in considerable loss of AUMs, and is likely to add additional expense on the part of permittees.

Alternative 3 Adaptive management: Direct and Indirect effects:
-On sites where it has been determined that current livestock use has an adverse effect to heritage resources, additional fences included as adaptive planning options could be implemented under alternative 3. Losses in AUMs and additional expense described in Alternative 2 as a result of adverse effects to heritage resources would not occur.

-Additional fences and water developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Construction of Medicine Wheel Spring Development exclosure fence (504161), Leigh Creek Spring Water Gap exclosure fence (504023), High Park Spring and Pipeline exclosure fence (504029), Stock Drive Spring exclosure fence (504173), Meadowlark Riparian Area Fence (504207), Meadowlark Riparian Area Tank exclosure fence (504208), and Indian Creek Pipeline & Tank exclosure fence (504209) would each remove a very small amount of forage from that available to permitted livestock.

-Movement of the allotment boundary in Tensleep Canyon to the Tensleep Canyon Drift Fence (504201) will add a small amount of forage to the allotment, and will reflect the actual management boundary of the Canyon Pasture.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Rock Creek C&H

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics
Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 3 Adaptive management: Direct and Indirect effects:
-Additional fences and spring developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Construction and/or reconstruction of Elk Haven Spring 1 exclosure fence (107033), Firebox Spring exclosure fence (107038), Southeast South French Spring exclosure fence (107035), Johnson Creek Cougar Canyon Spring exclosure fence (107036), and Elk Haven Spring 2 exclosure fence (107034) would each remove a very small amount of forage from that available to permitted livestock

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

South Canyon C&H

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 3 Adaptive management: Direct and Indirect effects:
-Additional fences and spring developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Reconstruction of Canyon Creek Cow Camp Horse Fence (505041D) on the south side of FDR 436 would eliminate two gates for the public on that road, and reduce conflicts among users.

-Construction and/or reconstruction of Leigh Creek Pipeline & Tank exclosure fence (505604), Heart Attack Spring exclosure fence (505610), Trails Unit Spring exclosure fence (505614), Cottonwood Spring & Tank exclosure fence (505618), Upper Canyon Creek Spring exclosure fence (505621), Simmons Park Spring exclosure fence (505622), Timber Sale Spring exclosure fence (505625), Lower Canyon Creek Spring exclosure fence (505626), would each remove a very small amount of forage from that available to permitted livestock

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Tensleep Canyon C&H

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional Direct, Indirect, or Cumulative effects were identified beyond those described in the allotment-wide discussion above.

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:

Alternative 3 Adaptive management: Direct and Indirect effects:
-Additional fences and water developments included as options in adaptive planning would provide opportunities for time and energy savings on the part of the permittee, and increased economic efficiency. Livestock distribution would be improved. This would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

-Construction of Canyon Spring (507132), exclosure fence, and pipeline to stock tank, would provide water in the lower end of the South Highway Pasture for improved control of livestock grazing time, timing, and distribution. It would make it possible to make use of forage in the event the allotment boundary extension is made below US Highway 16.

-Construction of Canyon Spring Pipeline & Tank A (507132A) spring development, exclosure fence, and pipeline to stock tank, would provide water in the lower end of the Highway South Pasture, north of Highway 16. It would make it possible to make use of forage in the area currently unfenced above US Highway 16.

-Construction of Canyon Spring Tank Drift Fence (507133) and Highway South ROW Fence (507135) would prevent drift by livestock using the Canyon Spring Pipeline & Tank A.

- Construct of Highway South Boundary Fence (507136) would improve control of livestock grazing time, timing, and distribution.

- Authorizing grazing in area A of Section 23, on top of the canyon would add 446 acres of rangeland to the allotment. Authorizing grazing beyond the current allotment boundary in areas C, and D would add 70 acres of rangeland to the allotment. Authorizing grazing beyond the current allotment boundary in area B would add 56 acres of rangeland to the allotment. However, area B would be unusable with the construction of a ROW fence and water tank. Constructing a ROW fence and water tank above the highway in Tensleep Canyon would make available an additional 116 acres of Suitable rangeland on the allotment. Any combination of these actions would add to flexibility in management and a greater likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide. Further effects of these actions are discussed in the Rangeland Vegetation portion of this document.

-Construction of Canyon Spring exclosure fence (507132) would remove a very small amount of forage from that available to permitted livestock

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Upper Meadows S&G

Issue 1) Vacant allotments

Alternatives 1, 2, and 3:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Issue *5) Socio-Economics*

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both alternative 2 and 3, the use of vacant Willow S&G and Leigh Creek S&G allotments would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for permitted allotments, adding to flexibility in management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Willow S&G

Issue 1) Vacant allotments

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.
~~-Under this alternative Willow is likely to maintain that lonely deer-in-the-headlights appearance of a vacant allotment.~~

Alternative 2 Current Management: Direct and Indirect effects:
-Use of vacant Willow S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).

Alternative 3 Adaptive management: Direct and Indirect effects:
-As with alternative 2, use of vacant Willow S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).

Issue 5) Socio-Economics

Alternative 1 No action no grazing: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Alternative 2 Current Management: Direct and Indirect effects:
-Under both Alternative 2 and 3, the use of vacant Willow S&G allotment would continue following Forest Service direction for allocating available forage (FSM 2209.13 Chapter 10 Interim Directive No. 2209.13-2009-1).This may result in slightly lighter stocking rate for permitted allotments, adding to flexibility in management and a higher likelihood of meeting the portion of Forest Plan Strategy #1 for livestock grazing that states "Strive to authorize grazing for domestic livestock that will provide stable livestock numbers and season of use." (Revised BNF Plan page 1-8). It would also support the portion of that strategy that directs management to strive to maintain or exceed the 2004 permitted stocking level of AUMs Forest wide.

Alternative 3 Adaptive management: Direct and Indirect effects:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Cumulative effects for all alternatives:
-No additional effects were identified beyond those described in the allotment-wide discussion above.

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Alternative 1 would be the least in compliance with the Forest Plan because AUM's would not be maintained. Alternative 3 would be the most inclined to meet Forest Plan Strategies.

Monitoring Recommendations

Effectiveness (Short-Term) monitoring, in accordance with Forest Plan direction, is completed "as necessary". Frequency is dependent upon the circumstance and not normally specified on a fixed basis. Permittees monitor in real-time as they assess livestock use levels, and the forest conducts spot-checks as necessary.

The Bighorn National Forest Vegetation Grazing Guidelines (USDA Forest Service 2007) directs measurements to be taken and documented within 7 days of livestock leaving a pasture.

Effectiveness (Long-Term) monitoring such as those measured by photo points, species composition changes, etc. is normally not required nor intended to occur annually. Protocols and frequency are described on Table 1-2, Benchmark and Desired Condition. Frequency of monitoring trend is likely to be increased on sites determined to not be meeting or moving toward desired conditions. Table 2-4 (adaptive strategies) also includes triggers which may drive more frequent monitoring.

References

-2210, 2230, and 2240 Files, Powder River District, Bighorn National Forest, USDA Forest Service
-Bighorn National Forest Land and Resources Management Plan, Revised 2005
-Table 4, Potential Cumulative Effects Considerations
-Table 2-5: Tensleep Creek Watershed Associated Adaptive Management Actions
-Attachment "A" Current Management
-Attachment B Stocking
-Attachment B1Stocking Data
-Attachment B3 actual use data
-Attachment C Pasture Sequence
-Attachment D and D1 Long Term Monitoring
-Attachment E Current Allotment Management Plans
-Attachment F Permitted Use

-Bighorn National Forest Vegetation Grazing Guidelines (USDA Forest Service, Revised 2007)
-Attachment A, Rangeland Suitability analysis for Tensleep and Rock Creek Watershed Allotments
-Attachment H, Sagebrush Treatment Summary for Tensleep and Rock Creek Watershed Allotments
-Supplement 1-2, Desired Condition for the "Big Six" Project Area
-Table 1-2, Desired Conditions and Benchmark Sites
-Table 3, Key Areas and Benchmark Sites
-Specialist Report for Rangeland Vegetation for Tensleep and Rock Creek Watershed Allotments
-Rangeland Analysis and Management Training Guide, Region 2, USDA Forest Service 1996